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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,588	11/15/2000	Hans-Peter Bierbaumer	BIERBAUMERET	7819
7590	03/26/2004		EXAMINER	
Collard & Roe 1077 Northern Boulevard Roslyn, NY 11576			CHORBAJI, MONZER R	
			ART UNIT	PAPER NUMBER
			1744	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/601,588	BIERBAUMER, HANS-PETER	
	Examiner	Art Unit	
	MONZER R CHORBAJI	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 15 November 2000.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-103 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-103 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 November 2000 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03/19/2004</u> .	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Claim Objections

1. Claims 2-8 and 10-104 are objected to because of the following informalities:

In claim 2, line 1; applicant uses the phrase "characterized in that". Such a phrase should be replaced with "wherein". The same applies to claims 2-8 and 10-104. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 2-8, 10-46, 48-52, 56-89, 92-99, 101, and 103-104 are rejected under 35 U.S.C. 102(b) as being anticipated by Sadat (XP-002111443).

With respect to claims 43 and 104, Sadat discloses a plant (figure 2) and a method (page 662, col.1, SPI Facility) for irradiating a foodstuff (page 661, introduction) including the following: a conveyor system (page 662, col.1, SPI Facility) for displacing an object in a vertical motion (figure 1, an object is passed in a vertical direction past the accelerator), a source of generating free electrons (page 661, col.1, Introduction), an accelerator system (figure 1, accelerator), an irradiation chamber surrounded by walls to protect against irradiation (page 662, col.1, SPI Facility), and electrons from an incandescent cathode (page 661, col.1) are focused and pulsed in an accelerator unit

(Page 661, col.1) with waves of a specific, pre-definable frequency (page 662, col.1, Table 1).

With respect to claims 2-8, 10-42, 44-46, 48-52, 56-89, 92-99, 101, and 103, Sadat teaches the following: electromagnetic waves are used to accelerate electrons (page 661, col.1, lines 13-15), the use of cavity resonators (page 661, col.1, lines 23-25), the use of a pulsed microwave (page 661, col.1, lines 27-30), the of use a klystron (page 661, col.1, line 24), the feed rate is correlated with the scanning rate (page 661, col.1, lines 20-21), the number and time of pulses (page 662, table 1), energy of the electrons of 5 Me V to 30 Me V (page 662, table 1), correlation between the feed rate and the layout of the buffers and the residence time (figure 2, page 663, col.2, lines 9-15, buffers are inherent parts of a conveyor system), displacement combining a vertical and a rotary movement (page 662, col.1, lines 15-18), mean beam output in the range of 5 kW to 40 kW (page 662, col.1, lines 20-21), irradiating the object in parallel with its direction (figure 1, the accelerator and the regulated conveyor), irradiating both during a downward and an upward displacement (page 662, col.1, lines 15-18), , irritating objects from several sides simultaneously (page 662, col.1, lines 15-18), the use of dosimeter (page 664, col.1, lines 1-2), the use of alanine transfer dosimeter (page 664, lines 1-2), parameters transferred to an EDP system for processing, storage, and control purposes (page 661, col.1, lines 33-34), the use of calorimetric dosimeters (page 663, col.1, lines 5-6), the use of a scan horn (page 663, col.1, lines 5-6), the use of a marker (page 661, col.1, lines 30-32 such that it is inherent for each package to have a marker in order to be scanned), the use of a scanner such as a reading device (page 663, col.2, lines 5-6),

buffering the objects at two predetermined points of the conveyor (buffering is an inherent structure of a conveyor system), feeding objects without any intermediate spaces (page 662, col.1, lines 11-12), feeding the objects at certain intervals (page 662, col.1, lines 11-12 and line 20), feeding the object several times past the electron beam (page 662, col.1, lines 15-18), transporting objects in and out of the irradiation chamber from one side of the irradiation chamber or from different sides of the chamber (figure 1, the accelerator, the regulated conveyor, and page 662, col.1, lines 15-18), the use of a discharge conveyor device (figure 2, 5), irradiating objects in a geometric manner (page 661, col.1, lines 30-32), conducting preliminary test to determine the radiation dose that result in determining the speed of the conveyor (pages 662 and 663, Different Dosimetry Methods), attaching dosimeters to individual objects (page 663, col.2, lines 7-11), the use of an identification system (inherent feature of the Dosimetry methods on pages 662-663 in order to determine the proper dose of radiation as a function of each object), regulating the speed of the conveyor on the basis of a desired / actual comparison of the applied dose resulting in setting the parameters for the device (page 663, col.2, lines 7-15), the irradiation chamber is on a different level than the level of the conveyor system (figure 2, 1 and 5), feeding objects in and out through a labyrinthine entrance to the chamber either from one or from different sides (figure 1, accelerator, unloading device, conveyor, loading conveyor, turning over device, regulated conveyor, and marking device), the conveyor system consists of two separate regions (figure 2, 4 and 5), the use of a wall (figure 2, 50), the accelerator is a linear or a ring accelerator (page 661, col.1, lines 1-3), scanning height is up to 60 cm (page 661, col.2, lines 5-7),

the electron emitting device describes a circle around the conveyor system (figure 2, 1 and 4), irradiating objects in their original packages being fed on pallets (page 662, col.1, lines 14-16), the electron beam penetrates the objects (page 661, col.1, lines 30-32), the use of a deflector device in order to scan at least a part-region of the surface of the object (page 663, col.2, lines 5-15), displacement of the objects is set in order to distribute a uniform dose of the radiation (page 661, col.1, lines 33-39), resonators are made of metallic material (page 661, col.1, lines 23-25, inherent feature of the Sadat's resonator), the stationary wave in the accelerator unit is excited by a pulsed microwave (page 661, col.1, lines 23-30), the use of a high voltage modulator (page 661, col.1, lines 13-15), rotating 360 degrees (page 662, col.1, lines 14-19), at least parts of the conveyor are continuous such as a process conveyor (figure 2, 4), the use of a transverse carriage (figure 2, 5), the use of a position sensor (page 664, col.1, lines 8-13), the conveyor system has at least one stop provided before each change of direction (page 662, col.1, lines 14-18), the use of a switch buffer (an inherent feature of the conveyor system in figure 2), the use of a servomotor (inherent feature of the conveyor system in figure 2), the conveyor system includes a counting station (page 661, col.1, lines 30-32), the use of a ventilator (inherent feature of the plant in figure 2), and the feed tracks are driven (inherent feature of the regulated conveyor in figure 2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 53-55 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadat (XP-002111443).

With respect to claims 53-55 and 100, even though Sadat does not explicitly teach such features, however, Sadat recognizes that the radiation chamber must be covered by thick walls (page 662, col.1, lines 11-13) in order to prevent the escape of doses that affect the environment including plant workers. Thus, it is credible to believe that the plant of Sadat would include safety features such as those mentioned in claims 53-55 and 100.

7. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadat (XP-002111443) in view of Zimek (XP-002111442).

The teachings of Sadat have previously been set forth with respect to claims 2-8, 10-46, 48-52, 56-89, 92-99, 101, and 103-104. However, with respect to claim 47, Sadat fails to teach placing the irradiation chamber underground. Zimek teaches building an irradiation chamber underground (page 572, lines 1-2). Thus, one skilled in the art would have been motivated to modify the device of Sadat by placing the irradiation

Art Unit: 1744

chamber underground since such a location significantly reduces the volume of the concrete used to shield the irradiation chamber and the accelerator room (Zimek, page 572, lines 8-10).

8. Claims 90-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadat (XP-002111443) in view of Corman (U.S.P.N. 4,107,523).

The teachings of Sadat have previously been set forth with respect to claims 2-8, 10-46, 48-52, 56-89, 92-99, 101, and 103-104. However, with respect to claims 90-91, Sadat fails to teach the specific use of infrared transmitters. Corman teaches the use of infrared transmitters in the art of irradiating objects (col.8, lines 42-45). Thus, it would have been obvious to one having ordinary skill in the art to modify the plant to Sadat to include infrared transmitters in order to eliminate the signals, which might come from parasitic sources of radiation (col.8, lines 47-49).

9. Claim 102 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadat (XP-002111443) in view of Wakamoto (EP 0731 626 A1).

The teachings of Sadat have previously been set forth with respect to claims 2-8, 10-46, 48-52, 56-89, 92-99, 101, and 103-104. However, with respect to claim 102, Sadat fails to teach the use of heat exchanger. Wakamoto teaches the use of a heat exchanger (abstract, lines 9-13). Thus, it would have been obvious to one having ordinary skill in the art to modify the plant of Sadat to include a heat exchanger in order to make the thermal expansions of the resonance cavities uniform (Wakamoto, abstract, lines 1012).

Conclusion

Art Unit: 1744

10. The prior art made of record but not relied upon is considered pertinent to applicant's disclosure. Ivanov et al (U.S.P.N. 4,446,374) and Ludwig (U.S.P.N. 3,564,241) teach similar concepts in using pulsed electron beam accelerators to treat material.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 8:30-5:00.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBERT J WARDEN can be reached on (571) 272-1281. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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